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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/042,997 | 01/09/2002 | Stephen Philip Cheatle | 30004519-2 | 6166 |

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| EXAMINER | |
|-----------------------------|--------------|
| PERUNGAVOOR, SATHYANARAYA V | |
| ART UNIT | PAPER NUMBER |
| 2625 | |

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--|---------------------------------------|--|
| Office Action Summary | Application No. 10/042,997 ✓ | Applicant(s) CHEATLE ET AL. | |
| | Examiner Sath V. Perungavoor | Art Unit 2625 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 22-33 is/are rejected.
- 7) ☒ Claim(s) 14-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant(s) Response to Official Action

- [1] The response filed on 31 May 2005 has been entered and made of record.

Response to Arguments

- [2] Applicant's arguments filed on 31 May 2005 have been fully considered but they are not persuasive. Examiner's response to the presented arguments follows below.

Objection to the Specification

Summary of Arguments:

Applicants submit an amended specification. Applicants traverse the objection made to British English spellings. Applicant requests the withdrawal of the objection.

Examiner's Response:

Agreed. Examiner has reviewed the marked up copy of substitute specification. Examiner withdraws the previously made objections.

Claim Rejections - 35 USC § 102

Summary of Arguments:

Regarding Claims 1: Applicants argue the following:

1. Shigeo does not disclose, "assigning a quality factor to each image, the quality factor being representative of the composition quality of the analysed images".

Applicant requests the withdrawal of the rejection.

Art Unit: 2625

Examiner's Response:

Examiner respectfully disagrees.

Regarding Claim 1: Examiner directs the applicants to the Shigeo reference at ABSTRACT-PROBLEM TO BE SOLVED, paragraphs [0079] and [0080], where Shigeo elucidates that an old image with a lower color number is replaced with a newer image. Here the color number acts as the quality factor, since lower quality is associated with a lower color number. This is glaring at [0044], where a lower color number is associated with “**failure images**, such as a **luminescence mistake** of electronic flash”. Color number is used in the decision process by the memory management system, because the memory management system needs to remove elements from the memory as the available space decreases and uses the color number (quality factor) to aid in the decision making process. Examiner directs the applicants to ABSTRACT-SUBJECT OF THE INVENTION and ABSTRACT-PROBLEM TO BE SOLVED, where further support is provided for the Examiner's assertions. Furthermore, Examiner evidences that this is exact replica of the instant invention as claimed.

Applicants' substitute specification paragraph [04] recites the following:

photographer. Since such cameras have a limited memory capacity, such unwanted images take up significant amounts of storage space and so frequent 'clearing-out' operations have to be performed, as well as post-editing to sort out the good-photos from the bad (and thus still requiring the user to have some appreciation of composition).

Applicants' substitute specification paragraph [05] recites the following:

Art Unit: 2625

of the image content; assigning a quality factor to each image, the quality factor being representative of the composition quality of the analyzed image content; and updating the memory to maintain images for which the assigned quality factor indicates a higher composition quality than an image captured at an earlier time.

Examiner interprets this to mean that an image of lower compositional quality would be assigned a lower quality value and potentially be replaced with one of higher compositional quality (having higher quality factor) in the future. As evidenced by the disclosure, the disclosed quality assessment operation is performed to remove poor quality images to provide memory space for better quality images.

Claim Rejections - 35 USC § 103

Summary of Arguments:

Regarding Claims 24-28 and 33: Applicants make analogous arguments to those presented for claim 1.

Examiner's Response:

Examiner respectfully disagrees. Examiner directs the applicants to the response for claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2625

[3] Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeo [JP 10-304231].

Regarding claim 1, Shigeo discloses all the claim limitations, as follows:

A method of selectively storing digital images in a memory, the memory being connected to a processor, the processor being connected to a digital image source, the method comprising (Title and Abstract-Problem to be solved; Abstract discloses a computer and camera, involved in camera memory management. The digital image source would be coming from the camera.):

storing, in the memory, a plurality of digital images received from the source, each image representing an event captured at a different respective time (Abstract-Problem to be solved; Abstract discloses the storing in memory the captured images and these images would be captured at different times.);

using the processor to perform an analysis of the images (Abstract-Solution; Image selection is performed by the computer and it would have a processor.);

assigning a quality factor to each image, the quality factor being representative of the composition quality of the analysed images (0079 and 0080; Image selection is performed by the computer and this assigns the value to each image depending on the image features.); and

updating the memory to maintain images for which the assigned quality factor indicates a higher composition quality than an image

captured at an earlier time (Abstract-Solution, 0079 and 0080; Image selection is used for deleting the older images with lower assigned value.).

Regarding claim 2, Shigeo discloses all the claim limitations, as follows:

A method according to claim 1, wherein first and second images are stored, the second image being captured after the first image, the step of updating the memory comprising deleting the first image if its assigned quality factor indicates a lower composition quality than that assigned to the second image (Abstract-Solution, 0079 and 0080; Image selection is used for deleting the older images with lower assigned value.).

Regarding claim 3, Shigeo discloses all the claim limitations, as follows:

A method according to claim 1 or claim 2, wherein the step of analysing the image content comprises identifying sets of images having similar appearance by means of comparing an image acquired at a time t_1 with an image acquired prior to t_1 , the step of updating the memory being performed separately for each identified set of images having similar appearance (0079 and 0080; Image selection is performed by the computer and this assigns the value to each image depending on the similar appearance comparison. When updating is performed it is done with only those in the set that were used in the comparison.).

Regarding claim 4, Shigeo discloses all the claim limitations, as follows:

A method according to claim 1 or claim 2, wherein the step of analysing the images comprises identifying at least one portion of the image, comparing the or each portion with an equivalent portion of a previously acquired image to identify images having similar appearance, the step of updating the memory being performed separately for images of a similar appearance (0079 and 0080; Image selection is performed by the computer and this assigns the value to each image depending on the similar appearance comparison. When updating is performed it is done with only those in the set that were used in the comparison.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[4] Claims 5-9, 13, 23-29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeo in view of Cosatto et al. (hereinafter "Cosatto") [US 6,118,887].

Regarding claim 5, Shigeo discloses the claim limitations as set forth in the discussion for claim 4:

Shigeo does not explicitly disclose the following claim limitations:

A method according to claim 4, wherein, in the step of analysing the images, the at least one portion of the image to be compared is established by means of (i) identifying at least one

area of interest in the image, and (ii) tracking the motion of said at least one area of interest over subsequent images.

However, in the same field of endeavor Cosatto discloses the deficient claim limitations, as follows:

A method according to claim 4, wherein, in the step of analysing the images, the at least one portion of the image to be compared is established by means of (i) identifying at least one area of interest in the image, and (ii) tracking the motion of said at least one area of interest over subsequent images (Fig. 7A; Cited reference discloses the motion tracking system for tracking facial areas.).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Shigeo with Cosatto to further meet the claim limitations, as follows:

Cosatto discloses motion tracking based on quality values from multiple motion detecting methods (Column 6 Lines 52-56). Based on these confidence scores the images are updated.

Shigeo discloses image updating based on quality values (see discussion for claims 1-4).

One could effortlessly combine both teachings in order to meet all the claim limitations, since both Shigeo and Cosatto perform quality value based

image updates and Cosatto furthers the quality evaluation process. Hence, Cosatto's invention would be improvement on Shigeo's invention.

Regarding claim 6, Cosatto discloses all the claim limitations, as follows:

A method according to claim 5, wherein the step of identifying said at least one area of interest comprises segmenting the image into regions having generally consistent texture (Column 3 Lines 24-27; Cited reference discloses color and texture segmentation.).

Regarding claim 7, Cosatto discloses all the claim limitations, as follows:

A method according to claim 5, wherein the step of identifying said at least one area of interest comprises segmenting the image into regions having generally consistent colour (Column 3 Lines 24-27; Cited reference discloses color and texture segmentation.).

Regarding claim 8, Cosatto discloses all the claim limitations, as follows:

A method according to claim 5, wherein the step of identifying said at least one area of interest comprises segmenting the image into regions having generally consistent texture and colour (Column 3 Lines 24-27; Cited reference discloses color and texture segmentation.).

Regarding claim 9, Cosatto discloses all the claim limitations, as follows:

A method according to claim 5, wherein the step of analysing the images further comprises identifying at least one subject area of interest, and wherein, in the step of assigning a quality factor to each image, the quality factor is representative of the composition quality of said at least one subject area of interest (Column 6 Lines 52-56; Quality factor is assigned to the facial features of the tracked image.).

Regarding claim 13, Cosatto discloses all the claim limitations, as follows:

A method according to claim 9, wherein, in the step of identifying said at least one subject area of interest, human facial features are identified as comprising said at least one subject area of interest (Column 5 Lines 30-33; Cited reference identifies the facial features.).

Regarding claim 23, all claimed limitations are set forth and rejected as per discussion for claim 5. Motion tracking disclosed involves the position sensor (Column 3 Lines 37-38).

Regarding claims 24-29 and 32, all claimed limitations are set forth and rejected as per discussion for claims 1-9 and 13.

[5] Claims 11, 12 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeo in view of Cosatto further in view of Isadore-Barreca et al. (hereinafter "Isadore-Barreca") [US 6,205,231].

Regarding claim 11, Shigeo and Cosatto disclose the claim limitations as set forth in the discussion for claim 9.

Shigeo and Cosatto do not explicitly disclose the following claim limitations:

A method according to claim 9, wherein, in the step of identifying said at least one subject area of interest, said at least one subject area of interest is identified according to identification tags situated on particular subjects.

However, in the same field of endeavor Isadore-Barreca discloses the deficient claim limitations, as follows:

A method according to claim 9, wherein, in the step of identifying said at least one subject area of interest, said at least one subject area of interest is identified according to identification tags situated on particular subjects (Figure 8 and Column 10 Lines 57-64).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Shigeo and Cosatto with Isadore-Barreca to further meet the claim limitations, as follows:

Cosatto's search uses beards, sunglasses and other features to identify certain subjects (Column 17 Lines 24-29). They act as tags even though they are not explicitly labeled as tags.

Isadore-Barreca's invention physically attaches tags on the subject (Figure 8).

Art Unit: 2625

One could effortlessly combine both teachings in order to meet all the claim limitations, since it would mere substation of one type of tag with another type.

Regarding claim 12, Cosatto discloses all the claim limitations, as follows:

A method according to claim 11, wherein different tag types are provided for different groups of subjects, said at least one subject area of interest being categorized according to the tag type identified (Column 17 Lines 24-29; Beard, sunglasses and other features can uniquely identify one group from another.).

Regarding claim 31, all claimed limitations are set forth and rejected as per discussion for claim 11.

[6] Claims 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeo in view of Parulski et al. (hereinafter "Parulski") [US 5,440,343].

Regarding claim 22, Shigeo discloses the claim limitations set forth in the discussion for claim 4.

Shigeo does not explicitly disclose the following claim limitations:

"the images are divided into first and second groups, the first group comprising images received at a first data rate and a first resolution and the second group comprising images received at a second data rate and a second resolution the second data rate

being greater than that of the first data rate, and the second resolution being less than that of the first resolution”

However, in the same field of endeavor Parulski discloses the deficient claim limitations, as follows:

“the images are divided into first and second groups, the first group comprising images received at a first data rate and a first resolution and the second group comprising images received at a second data rate and a second resolution the second data rate being greater than that of the first data rate, and the second resolution being less than that of the first resolution” (Column 2 Lines 1-10; Cited reference discloses a camera system with high resolution and low resolution capabilities. It also provides high sample rate for the low resolution and low sample rate for the high resolution.).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Shigeo with Parulski to further meet the claim limitations, since still images need higher resolution than motion images. Motion images need higher sampling rate than still images (Column 2 Lines 1-10).

Regarding claim 33, all claimed limitations are set forth and rejected as per discussion for claims 1-13 and 22.

Art Unit: 2625

[7] Claims 10 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeo in view of Cosatto further in view of Hunke [US 5,912,980].

Regarding claim 10, Shigeo and Cosatto meet the claim limitations as set forth in the discussion for claims 9

Shigeo and Cosatto do not explicitly disclose the following claim limitations:

“subject area of interest is identified as being located generally in the centre of the image.”

However, in the same field of endeavor Hunke discloses the deficient claim limitations, as follows:

“subject area of interest is identified as being located generally in the centre of the image” (Column 5 Lines 28-33; Since most cameras are inherently focused to keep the subject in the center of the image. This would be expected of most images take by humans.)

One could effortlessly combine both teachings in order to meet all the claim limitations, since cameras are inherently focused to keep the subject at the center of the image. One would be expect the subject to be at the center of the image.

Art Unit: 2625

Regarding claim 30, all claimed limitations are set forth and rejected as per discussion for claim 10.

Allowable Subject Matter

[8] Claims 14-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

[9] **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

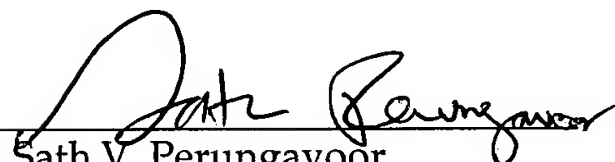
Art Unit: 2625

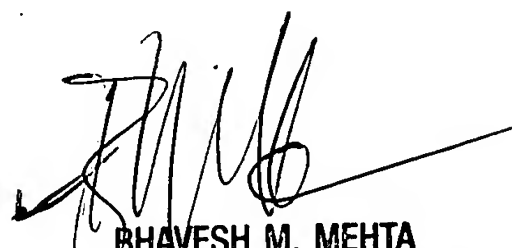
Contact Information

[10] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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